Test Report issued under the responsibility of:

TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

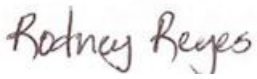
Report Number .....:	E139109-A6063-CB-1
Date of issue.....:	2018-11-29
Total number of pages .....:	81
Applicant's name.....:	**XP POWER L L C**
Address .....:	**15641 RED HILL AVE, SUITE 100** **TUSTIN CA 92780** **UNITED STATES**
Name of Test Laboratory preparing the Report .....:	UL Camas 2600 N.W. Lake Road, Camas, WA, 98607, USA
Test specification:	
Standard .....:	IEC 62368-1:2014 (Second Edition)
Test procedure .....:	CB Scheme
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC62368_1B
Test Report Form(s) Originator .....:	UL(US)
Master TRF.....:	2014-03

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory.
The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test Item description :	Switching Power Supply	
Trade Mark .....:		
Manufacturer .....:	XP POWER L L C 15641 RED HILL AVE, SUITE 100 TUSTIN CA 92780 UNITED STATES	
Model/Type reference .....:	SHP350PSXX Where XX is between 12-48.	
Ratings .....:	INPUT ~ 100 - 240VAC 50/60Hz 4.6A or INPUT ~ 100 - 120VAC 50/60/400Hz 4.6A Output: See Model Differences.	
Testing procedure and testing location:		
☐ CB Testing Laboratory:		
Testing location/ address .....:		
☐ Associated CB Testing Laboratory:		
Testing location/ address.....:		
Tested by (name + signature).....:		
Approved by (name + signature) .....:		
☐ Testing procedure: TMP/CTF Stage 1		
Testing location/ address..... :		
Tested by (name + signature).....:		
Approved by (name + signature) .....:		
☐ Testing procedure: WMT/CTF Stage 2		
Testing location/ address.....:		
Tested by (name + signature).....:		
Witnessed by (name + signature).....:		
Approved by (name + signature) .....:		
☒ Testing procedure: SMT/CTF Stage 3 or 4		

Testing location/ address..... :	XP POWER LLC, 15641 RED HILL AVE, SUITE 100, TUSTIN , CA 92780, USA	
Tested by (name + signature).....:	Rodney Reyes / Tester	
Approved by (name + signature) .....:	Gregory Ray / Reviewer	
Supervised by (name + signature) .....:	Adam Tangocci / Supervisor	

List of Attachments (including a total number of pages in each attachment):

National Differences (23 pages)
Enclosures (38 pages)

Summary of testing:

Unless otherwise indicated, all tests were conducted at XP POWER LLC, 15641 RED HILL AVE, SUITE 100, TUSTIN , CA 92780, USA.

Tests performed (name of test and test clause):	**Testing location:**
ELECTRIC STRENGTH TEST (5.4.9) PROSPECTIVE TOUCH VOLTAGE AND TOUCH CURRENT MEASUREMENT (5.7)	XP POWER LLC, 15641 RED HILL AVE, SUITE 100, TUSTIN , CA 92780, USA

Summary of compliance with National Differences:

List of countries addressed: AU,NZ, EU Group Differences, US,CA

☒ **The product fulfils the requirements of:** EN 62368-1:2014 + A11:2017

Copy of Marking Plate - Refer to Enclosure titled Marking Plate for copy.

TEST ITEM PARTICULARS:	
Classification of use by	Ordinary person
Supply Connection	AC Mains
Supply % Tolerance	+10%/-10%
Supply Connection – Type	For building-in
Considered current rating of protective device as part of building or equipment installation	20 A; building;
Equipment mobility	for building-in
Over voltage category (OVC)	OVC II
Class of equipment	Not Classified
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient	See Model Differences section. °C
IP protection class	IPX0
Power Systems	TN
Altitude during operation (m)	3048 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	1.8
POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object..... :	N/A
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
TESTING:	
Date of receipt of test item..... :	2011-06-18, 2014-11-03, 2018-03-05, 2018-09-25
Date (s) of performance of tests..... :	2011-07-18 TO 2011-07-27, 2014-11-10, 2018-06-29, 2018-09-25
GENERAL REMARKS:	
"(See Enclosure #)" refers to additional information appended to the report. **"(See appended table)" refers to a table appended to the report.** **Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**	
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☒ **Yes** ☐ **Not applicable**

When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) ..... :	XP POWER (KUNSHAN) LTD 230 BIN JIANG NAN RD ZHANGPU TOWN KUNSHAN JIANGSU 215300 CHINA XP POWER (VIETNAM) CO LTD LOT D - 4Q - CN MY PHUOC 3 INDUSTRIAL PARK BEN CAT DISTRICT BINH DUONG BINH DUONG VIETNAM XP POWER PLC 16 HORESHOE PARK PANGBOURNE RG8 7JW UNITED KINGDOM XP POWER LIMITED LIPO BLDG, #05-01 621 ALJUNIED RD SINGAPORE 389834 SINGAPORE XP POWER LLC 990 BENECIA AVE SUNNYVALE CA 94085 UNITED STATES

GENERAL PRODUCT INFORMATION:

Product Description

The product is a component AC-DC power supply for building-in, open frame type provided with a metal chassis.

Model Differences

All models with the series are identical, with exception to the output voltage and current ratings, number of turns of primary/secondary windings in the Transformers (T302 (Power)), and minor differences in the secondary circuit components and PWB layout. The 400 Hz rating is optional.

See below for Model Ratings Table (up to 50°C) for Model SHP350PSXX, where XX indicates the output voltage:

When input is between 100-240 Vac:

Model SHP350PS12: 10.1 Vdc to 13.5 Vdc, 26.5A (318W Max.)

Model SHP350PS15: 13.6 Vdc to 17 Vdc, 22 A (330W Max.)

Model SHP350PS18: 17.1 Vdc to 21 Vdc, 18.3 A (330W Max.)

Model SHP350PS24: 21.1 Vdc to 26 Vdc, 14.5 A (350W Max.)

Model SHP350PS28: 26.1 Vdc to 31 Vdc, 12.5 A (350W Max.)

Model SHP350PS33: 31.1 Vdc to 33 Vdc, 10.6 A (350W Max.)

Model SHP350PS36: 33.1 Vdc to 42 Vdc, 9.7 A (350W Max.)

Model SHP350PS48: 42 Vdc to 54 Vdc, 7.3 A (350W Max.)

When input is between 180-240 Vac:
Model SHP350PS24: 21.1 Vdc to 26 Vdc, 17.5 A (420W Max.)
Model SHP350PS28: 26.1 Vdc to 31 Vdc, 15 A (420W Max.)
Model SHP350PS33: 31.1 Vdc to 33 Vdc, 12.7 A (420W Max.)
Model SHP350PS36: 33.1 Vdc to 42 Vdc, 11.7 A (420W Max.)
Model SHP350PS48: 42 Vdc to 54 Vdc, 8.75 A (420W Max.)

All models also provided with 5V, 0.2A stand-by output.

50°C at full rated load and 70°C at half rated load.

Additional application considerations – (Considerations used to test a component or sub-assembly) -
Marking Plate is representative of all models.

This report is based on a previous evaluation to IEC 60950-1:2005 (2nd Ed.), Am1:2009 + Am2:2013 under CBTR Ref. No. E139109-A91-CB-2 including Amendments, CBTC Ref. No. US-25918-UL. Based on the previously conducted performance testing, only the tests conducted as part of this investigation were considered necessary.

The following tests were conducted under CTDP SMT/CTF Stage 3 to IEC 60950-1 E2+A1+A2 at XP POWER LLC, 15641 RED HILL AVE, SUITE 100, TUSTIN , CA 92780, USA:
Input: Single-Phase (1.6.2)
Capacitance Discharge (2.1.1.7)
SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1)
Humidity (2.9.1, 2.9.2, 5.2.2)
Determination of Working Voltage; Working Voltage Measurement (2.10.2)
Distance Through Insulation Measurements (2.10.5)
Heating (4.5.1, 1.4.12, 1.4.13)
Ball Pressure (4.5.5, 4.5)
Electric Strength (5.2.2)
Component Failure (5.3.1, 5.3.4, 5.3.7)
Abnormal Operation (5.3.1 - 5.3.9)
Transformer Abnormal Operation (5.3.3, 5.3.7b, Annex C.1)
Power Supply Output Short-Circuit/Overload (5.3.7)

The following additional tests were conducted on a sample of model SHP350PS12 in accordance with IEC 62368-1:2014 (Second Edition) at XP POWER LLC, 15641 RED HILL AVE, SUITE 100, TUSTIN, CA 92780 USA:
Electric Strength Test (5.4.9)
Prospective Touch Voltage and Touch Current Measurement (5.7)

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 50°C at full rated load and 70°C at half rated load.
- The product is intended for use on the following power systems : TN
-
- The equipment disconnect device is considered to be : To be determined in the end-product.

- Required Clearances have been adjusted by multiplying the clearance at sea level by a factor of 1.15 for operating at an altitude of 3048 meters. The correction factor is based on barometric pressure of 70kPa. If the calculated Clearance exceeded the Creepage, the Creepage was adjusted to the value of clearance.

Engineering Conditions of Acceptability

When installed in an end-product, consideration must be given to the following:

- The following product-line tests are conducted for this product : Electric Strength
-
- The following output circuits are at ES1 energy levels : All Outputs
- The following output circuits are at PS3 energy levels : All Outputs
- The maximum investigated branch circuit rating is : 20 A
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- The investigated Pollution Degree is : 2
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- Proper bonding to the end-product main protective earthing termination is : Required (Class I)
- An investigation of the protective bonding terminals has : Not been conducted
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- The following input terminals/connectors must be connected to the end-product supply neutral : AC N
- The following end-product enclosures are required : Mechanical, Fire, Electrical
- The following magnetic devices (e.g. transformers or inductor) are provided with an OBJY2 insulation system with the indicated rating greater than Class A (105°C) : L1, L2, L50, T201, T301-T303 (Class B)
- The power supply was evaluated to be used at altitudes up to : "3048 m"
-
- When installed in a Class I end product, the power supply shall be mounted in a manner that provides the minimum required Clearance between the primary side of power supply and protectively earthed accessible conductive parts.
- Heatsinks are floating and considered live. They should not be accessible in the end-product.
- A suitable main disconnect device shall be provided in the end product.
- The power supplies covered by this report have a fuse in the neutral of the primary circuit. The need for a marking to warn a service person of the hazards associated with double pole/neutral fusing shall be considered in the end product.
- Consideration to repeating the Touch Current test should be given in the end-product evaluation.
- The power supplies in this report have been subject to Capacitance Discharge testing. Additionally, all associated component safeguards have been assessed to the applicable requirement in Annex G.10. Additional testing should not be needed if directly connected to mains e.g. using an appliance inlet, wiring terminals, etc.